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# Teaching Nutrition Education to KinderPrep Students

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## Introduction

Often, elementary school curriculum neglects to include nutrition education. Because nutrition education does not receive much instructional time, students may not learn about proper nutrition, which may make it difficult to lead a healthy lifestyle as they get older. According to the Centers for Disease Control and Prevention (CDC) (2014), during the 2011-2012 school year, 52% of districts required some type of skill-based nutrition education, while only 35% required a curriculum be provided for each grade level. To address this, I created a 3-session curriculum about nutrition education and delivered it to KinderPrep students at Northminster Presbyterian Preschool/KinderPrep in Salinas, California.

## Needs Statement

Nutrition education is often marginalized in favor of more academic subjects. Perera, Fei (S), Frei (B), Wong, and Bobe (2015) found that many teachers thought that lack of classroom time and competing academic expectations were the greatest barriers for incorporating nutrition education in the classroom. Because of this, it may be better to integrate it through other subjects in order to learn the material.

In the last three decades, there has been an increase in childhood obesity. According to the CDC, childhood obesity has more than tripled in the last three decades (2018). There are a number of factors that can contribute to this. An example of this involves socioeconomic status; Seguin et al. (2017) states that low-income families have lower intake of fruits and vegetables, as well as a poorer diet. This may be due to having a lack of resources and time that is needed in order to purchase and prepare healthy foods. Rather, they are more likely to purchase fast food because it is not only more easily available, but it is also cheaper. Another factor that can contribute to childhood obesity is the environment; this includes school environment.

Schools are providing environments that do not support healthy eating. For instance, less than 30% of school-aged children eat the amount that is recommended from any one of the five major food groups in the Food Guide Pyramid, while only 2% of them meet the serving recommendations for all five major groups (American Dietetic Association (ADA), 2003). Lucarelli et al. (2014) found that one of the barriers that contribute to this includes school meals. However, schools have made efforts to change nutrition education.

While schools are attempting to promote nutrition in the classroom, it seems as though time is a substantial factor. In schools' curricula, the average total of hours used toward nutrition education was thirteen hours a year, while children are spending well over 1,100 hours a year in school (National Center for Education Statistics, 2000). Because nutrition is not a subject that is covered in standardized state tests, the amount of time that they are the sole focus is limited (Perera et al., 2015). A solution to this is through incorporating nutrition through other subjects. By doing this, teachers will not only not have to worry about taking time away from other subjects, but it allows them to find innovative ways to teach nutrition through other subjects with the flexibility to integrate it into any part of their school day.

In Chicago, there is already a program called Healthy Schools Campaign, that works with Chicago Public Schools to help merge nutrition lessons into their schools. This developmental program, Fit to Learn, aids teachers in meeting their state learning standards while combining nutrition and fitness into their classroom lessons (Healthy School Campaign, 2013). An example of this is integrating nutrition into science experiments, such as doing a comparison of vitamin C from different sources. This would allow students to learn to compare juices by nutritional value, while still learning science concepts. This has shown to be successful as many of the Chicago Schools that are partnered with the Healthy Schools Campaign have achieved the Gold award in

the HealthierUS School Challenge (Chicago Public Schools, 2013). This means that these schools have met high standards for not only nutrition education, but with physical activity and healthy food as well. Through my project, I plan on teaching nutrition lessons through art projects.

## Developmentally Appropriate Practice

The American Medical Association formally classified obesity as a disease in June 2013 (Maidenberg, 2016). It is the most common nutritional disease of children and adolescents in the United States. In the past 30 years, childhood obesity has more than doubled in children. In fact, in the United States, more than 30% of children and adolescents are obese or overweight. Children who are obese are more likely to be obese as adults, while children who are overweight are experiencing obesity-related chronic illness, such as hypertension, type II diabetes, and bone and joint problems that used to be confined to adulthood (Snelling et al., 2017).

In the last three decades, children's eating habits have changed. This change could be because not only is there a large positive social environment linked with non-nutritious foods, but high-fat foods are also easier to get. In 1990, the American Dietetic Association (ADA) described children and adolescents as crucial target audiences and schools as the appropriate environments for nutrition education in a statement on nutrition education for the public (as cited in Olson, 1995). Schools can present students with the knowledge and attitudes to help them make healthy food choices. They can help provide a sufficient environment to help encourage healthy eating. However, it is important to remember that schools alone cannot be held accountable for nutrition-related problems such as poor eating habits or obesity.

According to Jean Piaget, children's thinking between the ages of two and seven is in the preoperational stage where children are not yet able to think logically, but can think intuitively

and conceptually (Ramos-Christian, Schleser, & Varn, 2008); this limitation in thinking can affect the choices they make with nutrition. Studies show that children between the ages of five and seven are attracted to cartoon characters and use the images that are on packages to help them determine the taste of the food (Hensley, 2010). This idea goes back to preschool children being unable to process concrete logic, concepts, or reasoning, causing them to be vulnerable to visual appeals (John, 2009, as cited in Nelson, Duff, & Ahn, 2015). Children see familiar faces within these cartoons and instinctively gravitate towards the product with these characters whether the product is healthy or not. This can be a bad thing since cartoon characters tend to be shown on junk food.

During this stage, Piaget also states that children are egocentric and, therefore, believe that others see, feel, and hear exactly the same way they do; they are unable to see another person's point of view and really are only interested in things that impact them directly. Egocentrism can be important concept when it comes to nutrition. This stage can be an opportunity to try to show children how important nutrition is and how it can affect a person's well-being if handled incorrectly. Also during this stage, children exhibit centration, meaning that they are only able to focus on one aspect of a situation while ignoring much more significant ones (Tunyiova & Sarmany-Schuller). This stage could be a challenge when it comes to learning about the food guide pyramid and how to determine what a healthy plate looks like. Since children at this phase in their life cannot seem to focus on many features of a situation, they may only focus on one part of the healthy plate. An example of this could be when discussing how to build a healthy plate; half the plate should be of fruits and vegetables, and although children may understand this, they may not grasp that the other half should be split between grains and

proteins. Although this could be a challenge, trying to help children grasp all of these aspects could help them toward their next stage, the concrete operational stage.

Nelson, Duff, and Ahn (2015) discussed how preschool children may be rapidly developing Theory of Mind. With this development, they are able to understand different perspectives and how someone else's beliefs or intentions can influence their actions. The development of Theory of Mind can be advantageous when it comes to learning about nutrition; this idea would mean that children are moving out of egocentrism sooner, which can help them understand that not everyone has the same beliefs when it comes to nutrition and that is why they make the choices that they do.

## Considerations of Diversity

When it comes to preschool-age, as well as school-age, children, students who need nutritional services more, such as those of low-income families or socially disadvantaged students, may be the least able to receive the services in their community. Schools can help fix this by providing knowledge about nutrition to the students. It is ideal for nutrition education to be presented as an all-inclusive, integrated curriculum across all grades as part of all children's education experience (Eliason & Wilson, 2007).

My project will be conducted in an afterschool program at Northminster Presbyterian Church that consists of KinderPrep students from the Northminster Presbyterian Preschool/KinderPrep in Salinas, California. I anticipate that the students will reflect the ethnic composition of the school. According to admissions, for the 2017-18 school year, Northminster Presbyterian Preschool/KinderPrep is 41% Mexican, 38% White, and 21% Filipino. I would expect the participants to have had more exposure to nutrition knowledge than compared to a preschool/KinderPrep where the percentage of socioeconomically disadvantaged students is

greater. This is because this is a private school where parents are required to help out with bringing in nutritious snacks for the students throughout the school year, whereas, many other public preschools may either not provide snacks for the students at all or nonnutritious ones.

Culture also plays a role in dietary patterns. Children may follow the culturally specific foods prepared by their parents, which may not adhere to modern nutritional guidelines. For example, the food consumed north of Mexico is different from the rest of the country. The history of dietary practices in Mexico has been modified throughout life in response to different circumstances (Bojorquez, Renteria, & Unikel, 2014). Availability and accessibility to food that this specific culture contributed to their dietary patterns. The food that people north of Mexico had available to them was from household production or from local growers and was prepared from scratch. As they have migrated to larger cities, wild food and local products were no longer accessible, causing them to incorporate canned foods, industrialized snacks, and fast foods that they would rarely eat before. With this acculturation came an increase in obesity amongst this culture. The greater percentage of students I will be working with share this same culture and face the increased risk of obesity within their culture. By helping them learn about nutrition while they are young, their risk of obesity can reduce.

Diversity in a classroom can go deeper than just culture. According to Briggs et al. (2003), the number of school-aged vegetarians is increasing. Teachers also have to keep that in mind when explaining lesson plans with the students. If all lesson plans focus on non-vegetarians and do not include the dietary requirements for vegetarians, then students may feel like they are not included. With preschool children, unless they are vegetarian, they may know nothing about this concept; if they are vegetarian, they may not understand why, they just know that they cannot eat meat. This can be an idea shared with the students in an overall sense, rather than

going into specific details, as they may not comprehend the idea during their preoperational stage. Because I will be conducting the lessons in English, the participants will have to be English proficient enough to participate in the study. This project is geared towards preschool-aged children and, therefore, is not likely to apply in the same ways to older children or adults.

## Learning Outcomes

I intend to provide three, 30-minute lessons to KinderPrep students at Northminster Presbyterian Preschool/KinderPrep in Salinas, California, during their after-school program.

By the end of the project, participants will:

1. Place different foods into their correct category on the Food Pyramid.
2. Demonstrate building a healthy plate.
3. Distinguish healthy snack or food choices from unhealthy snack or food choices.

## Method

### Day 1

First, I will introduce myself to the class and explain why I am there. Then, I will ask them if they know what "eating healthy" means and keep track of their responses by writing them down. This will begin the lesson. I will lead a 15-minute lesson explaining the food guide pyramid and why each portion of it is important to health. I will draw a triangle on the board and explain to the students that this is how the food guide pyramid looks. I will explain each section of the food guide pyramid and what foods would belong there. Throughout the lesson, I will ask students what different foods they think will go in each section and I will write these responses on the board, and later on a paper. When the lesson is over, I will distribute pieces of paper that have triangles pre-drawn (see Appendix A) and allow the students to fill in the triangle with different foods in each section to help them remember. When the triangles are completed, I will

then distribute a worksheet (see Appendix B) that will allow them to match different foods into the correct food categories on the Food Guide Pyramid.

**Day 2**

On day 2, I will start off by asking the children what they remember from the previous day and keep track of their responses. I will then show a short video called "Talking My Plate" obtained from Nourish Interactive (2018), that explains how important it is to have a healthy plate that contains fruits, vegetables, proteins, and grains. When the video is over, I will demonstrate the plate by drawing a circle on the whiteboard and asking the class what I should do to make it a healthy plate. During this time, as we go through the different sections of the plate, I will ask what foods they could put in each section. After, I will distribute white paper plates, that I had previously divided into four sections with black marker, to each student (see Appendix C). After, I will encourage the students to build their own healthy plate of a meal they would like to have, by either drawing food in each section.

**Day 3**

On day 3, I will begin the class with an activity. I will start a discussion about healthy snacks and foods. When the discussion is over, I will lead a quick activity that involves me showing different types of snacks they would see at the grocery store and ask them if it was healthy or unhealthy. After this, I will hand them each a worksheet (see Appendix D) and instruct them to color the healthy snacks and put an 'X' on the unhealthy ones.

## Results

Learning outcome 1 was that the participants would be able to place different foods into their correct food categories on the Food Guide Pyramid. In order to assess this outcome, I had the participants complete a worksheet in which they had to match the foods to their correct

categories (Appendix B). By analyzing their worksheet, I grouped their answers into two different categories, successful or partially successful. Worksheets that matched everything correctly were considered “successful”, while worksheets that had some matched correctly were considered “partially successful”. None of the students were unable to match any of the foods; therefore, there was not an “unsuccessful” group. In looking over the worksheets, 73% of the students were able to match different foods with their correct food categories successfully and 27% were partially successful. Although some children were not able to match all of the foods to the food groups, only some, I believe that this outcome was met during the lesson.

Learning outcome 2 was that the students would be able to demonstrate creating a healthy plate. In order to assess this outcome, I had the participants draw and color different foods into four different sections of a white paper plate, similar to My Plate. When creating the plate, five of the eight students were successful in creating a healthy plate, while the other three were not successful. Five of the students were able to demonstrate creating a healthy plate by drawing or coloring foods from the different food categories on the Food Guide Pyramid into the appropriate sections of their plate. Two of the students decided to just color all over the plate, while one student turned his whole plate into a pizza. Although not all of the students were able to demonstrate building a healthy plate, most of them did, which leads me to believe that the learning outcome was met during the lesson.

Learning outcome 3 was that children would be able to distinguish healthy snacks or foods from unhealthy snacks or foods. In order to assess this outcome, I had participants complete a worksheet that required them to color the healthy items and put an “X” on the unhealthy ones (Appendix D). From analyzing their worksheets, I grouped their answers into three different categories: successful, partially successful, or unsuccessful. Successful

worksheets were 100% correct. Partially successful worksheets had most of the answers correct. Unsuccessful worksheets were not correct in that they were colored or scribbled all over. Four of the twelve students successfully completed the worksheet. Five were partially successful. Three were unsuccessful. I found that with the partially successful worksheets, the students had a difficult time with the images of pasta, turkey, and fish; things that were not commonly depicted in the discussions. Nearly all the students were able to distinguish healthy snacks or foods from unhealthy snacks or foods, providing evidence that the learning outcome was met.

## Discussion

I believe that this project was successful. Although a few students were unable to meet the learning requirements after each lesson, more than the majority of them were. The children were also using correct terminology on the last day, such as the words: grains, dairy, and protein. This outcome leads me to believe the lesson was successful even more because they were not familiar with these words on the first day.

When conducting my project, I was able to observe different aspects of the preoperational stage amongst the children. For example, centration was shown in the worksheets. The students who were partially correct were only able to focus on the idea of fruits and vegetables being healthy, while ignoring the protein and grains. Theory of Mind was also shown when working on demonstrating building a healthy plate. While the students were drawing their different foods, they would talk and look at each other's work and saw that they all had different foods on their plate. For example, if student one had broccoli on her plate and student two saw that and claimed to not like broccoli, student two was able to understand that student one drew it because she did like broccoli even though student two did not like broccoli and therefore did not draw it on her

own plate. This action demonstrates Theory of Mind because student one was able to comprehend that student two's beliefs towards broccoli was different from her own.

I believe that the project was developmentally appropriate. Since the children do not yet know how to read, the worksheets they were given were filled with pictures, rather than words. The lessons that were conducted to them was also age appropriate because it involved a great deal of coloring and drawing, things that children their age do a lot of in school, instead of reading, which they are just beginning to learn to do.

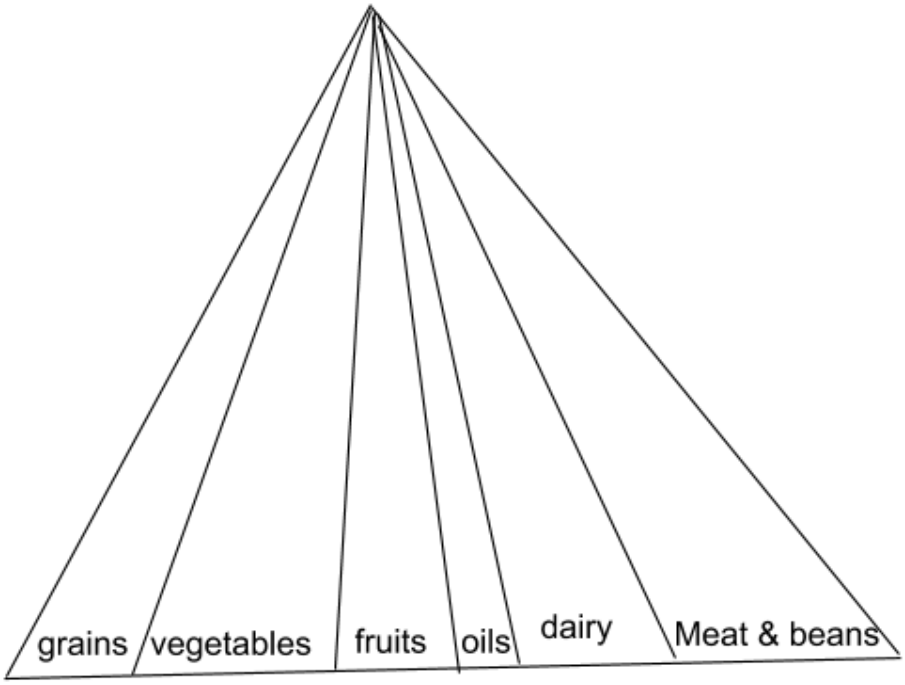
In order to be more inclusive of diversity different cultural foods could have been addressed. Nowhere in the lessons were the children asked, "what kind of food does your family eat at home?" Because this question was not asked, different cultures and their foods were not brought up so the children did not learn whether those types of foods that they eat at home were healthy or not. Another way to be more inclusive would be to address different types of diets that the children may have such as, vegetarian, vegan, or gluten-free. The lessons taught were given assuming that none of the children had any dietary restrictions. If different types of diets were addressed, it could have helped the students understand that they can get the proper foods that their body needs even if they have restrictions.

If I did this again, I would do a few things differently. I would try to be more inclusive for the reasons stated above. In order to do this, I would add an extra day, so instead of a three-session curriculum, I would conduct a four-session curriculum. I also would try to find a way to have more time with the students. The thirty-minute time block was not enough to be able to go more in depth with my lessons, especially since preschoolers love to share their own thoughts and stories. Another thing I would do differently is to try to have a time block earlier in the day to teach the children. The time block I had was the last thirty minutes of the after-school

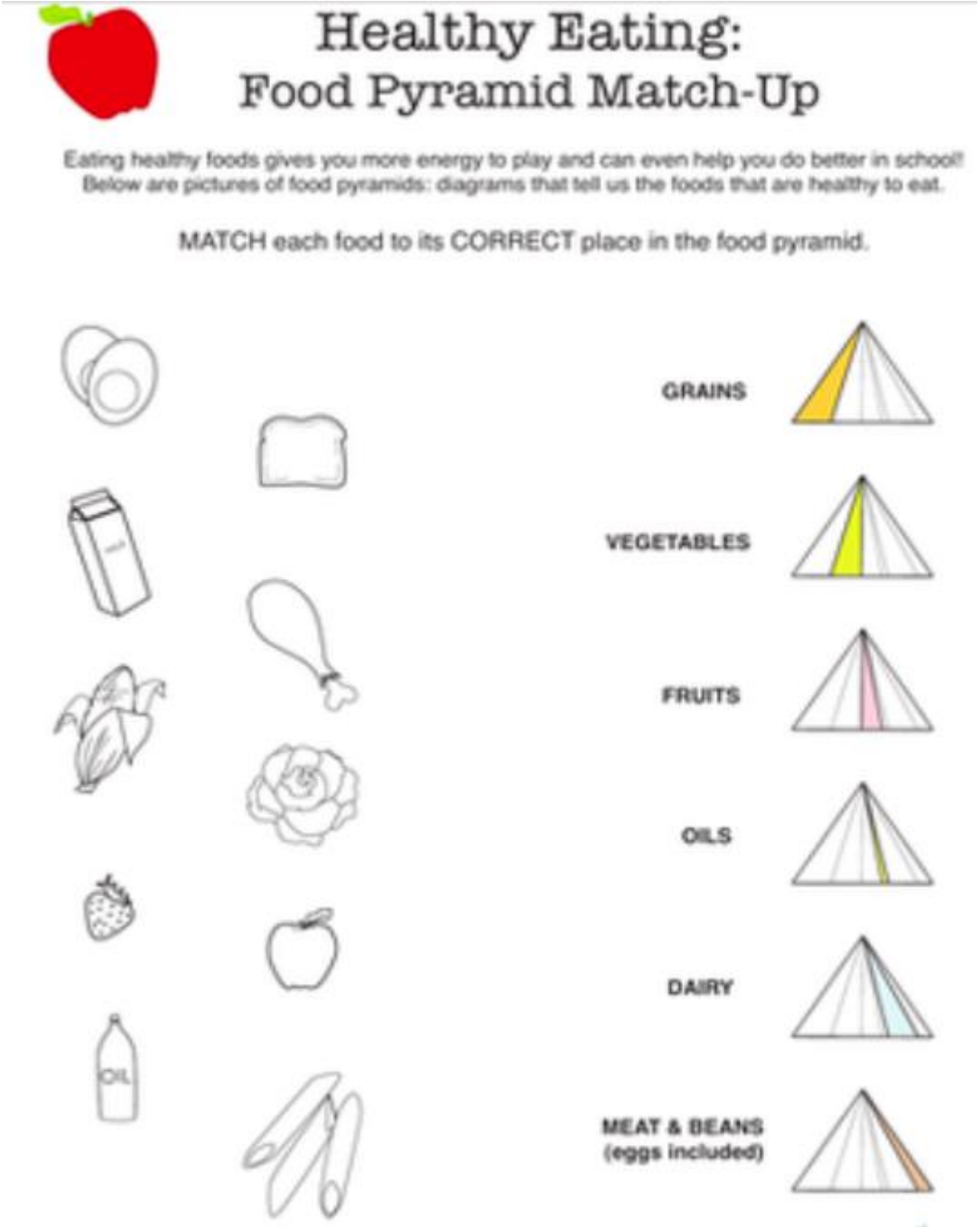
program, so some students were getting picked up as we were in the middle of the lesson. This lead me to have a different sample size each time. I would also change the time frame that I conducted the lesson. Spring break for the students was right in the middle, so while two lessons ended up being a week apart, the last lesson was two weeks after.

Overall, I believe this project was successful. The participants learned something about nutrition that they did not know. Although I know that they are preschoolers, I hope that they are will continue to be provided with nutrition knowledge as they continue on in their education. Given that they are so young, they may not have explicit instruction on nutrition, so I hope that they are able to ask questions to adults in their lives and be provided with correct answers, in regard to nutrition.

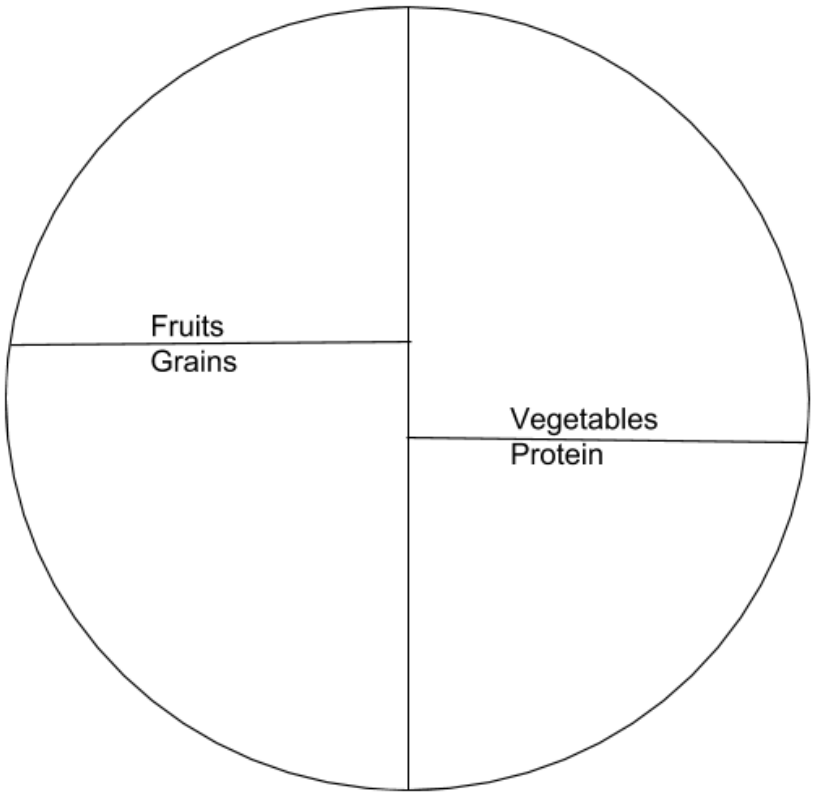
Appendix A



Appendix B


Healthy Eating:
Food Pyramid Match-Up
Eating healthy foods gives you more energy to play and can even help you do better in school!
Below are pictures of food pyramids: diagrams that tell us the foods that are healthy to eat.
MATCH each food to its CORRECT place in the food pyramid.
OIL
GRAINS
VEGETABLES
FRUITS
OILS
DAIRY
MEAT & BEANS
(eggs included)

Appendix C



Appendix D

Name: _____ Color the healthy foods. Circle the unhealthy foods.

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